IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	)	Confirmation No.: 5231
Tosiyasu L. KUNII	)	Group Art Unit: 3627
Serial No.: 09/991,953	)	Examiner: Michael A. CUFF
Filed: November 26, 2001	)	Attorney Docket: 13826
	)	Customer No. 001059

For: ELECTRONIC COMMERCIAL TRANSACTION SUPPORTING METHOD AND SYSTEM, AND BUSINESS INFORMATION MANAGEMENT SYSTEM THEREFOR

APPEAL BRIEF

In re the application of: KUNII

Serial No.: 09/991,953

APPEAL BRIEF

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(i) Real Party in Interest

The real party in interest is the **Kanazawa Institute of Technology**, the assignee, a fully accredited private technical university located at 7-1, Ohgigaoka, Nonoichi, Ishikawa 921 - 8501, Japan, as evidenced by the assignment as set forth at Reel 012629, Frame 0497.

(ii)   Related Appeals and Interferences

None.

(iii)   *Status of Claims*

Claims 6-17 and 23-25 stand finally rejected by the Examiner as noted in the Final Office Action mailed April 19, 2007. Claims 1-5 and 18-22 are cancelled. The rejection of claims 6-17 and 23-25 is appealed.

(iv)   *Status of Amendments*

None. There were no amendments filed subsequent to the Final Office Action.

(v)   *Summary of Claimed Subject Matter*

There are two independent claims pending in this application, claim 23 and claim 6. Claim 24 depends from and stands or falls with claim 23 as a first group. Claims 7-14 depend from and stand or fall with claim 6 as a second group. Claim 25 depends from independent claim 23 and is separately patentable. Claims 15, 16 and 17 depend from claims 12, 13 and 14, respectively, and stand or fall as a third group that is separately patentable.

i.   Independent claim 23

Independent claim 23 is directed to an electronic commercial transaction supporting method (para. 128, lines 1-2) that allows product attributes to be dynamically modified based on the purchasing decisions of e-customers, allowing subsequent e-customers to locate desired products more efficiently.

The method includes providing an e-mall having at least one e-shop (para. 130, lines 3-4, Fig 1. "e-mall A 16", "e-mall B 18"), the e-mall including an e-merchandise database (para. 130, lines 4-6; Fig. 1, "e-merchandise database 30") and an attribute correspondence table (para. 130, lines 7-8; Fig. 1 "attribute correspondence table 32"). The method further includes recording, within the e-merchandise database, an initial set of product attributes associated with a plurality of products (para. 130, lines 13-16; para. 143, lines 1-3; "the e-shop has to specify an offering price for the product", para. 13, lines 4-5), and receiving a first customer query from a first e-customer via a network, the query including a set of first search attributes (para. 142, lines 2-3: "the e-customer may search for desired merchandise"; lines 12-14).

The method further includes presenting, to the first e-customer, first product results (para. 143, lines 2-4; "In a search result area 82 the display shows the number of matches [22 here]"; see Fig. 5). The first product results include at least one product selected from the plurality of products (para. 143, line 4: "the particular result displayed [10 here]"; para. 145,

lines 1-2; see Fig. 5) based on the initial set of product attributes and the first search attributes (para. 142, lines 12-14; para. 144, lines 8-10) from the first e-customer.

The method further includes detecting if the first e-customer purchases a first product selected from the first product results (para. 145, lines 2-7; para. 147, lines 1-3), and determining if any attributes of the first search attributes did not previously exist in the attribute correspondence table (para. 147, lines 1-6). For each such attribute, the method includes defining such attribute as a new attribute, and recording at least one new correspondence relationship between the new attribute and a product attribute that is associated with the first product in the attribute correspondence table (para. 147, lines 4-11).

For at least one iteration, the method includes receiving a subsequent customer query from a subsequent e-customer, the subsequent customer query including a set of subsequent search attributes, and presenting to the subsequent e-customer subsequent product results including at least one product selected from the plurality of products. The subsequent product results are based on the initial set of product attributes, the subsequent search attributes, and the correspondence relationships recorded in the attribute correspondence table (para. 148, lines 4-7).

The method further includes detecting if the subsequent e-customer purchases a subsequent product selected from the subsequent product results (para. 145, lines 2-7; para. 147, lines 1-3), determining if any attributes of the subsequent search attributes did not previously exist in the attribute correspondence table (para. 147, lines 1-6), and for each such attribute, defining that attribute as a new attribute, and recording at least one new correspondence relationship between the new attribute and a product attribute that is associated with the subsequent product in the attribute correspondence table (para. 147, lines 4-11).

ii. Independent claim 6

Independent claim 6 is directed to an electronic commercial transaction supporting system (para. 138, lines 1-2, 6-7) that allows product attributes to be dynamically modified based on the purchasing decisions of e-customers, allowing subsequent e-customers to locate desired products more efficiently.

The system includes a shop ("e-shop", para. 129, lines 1-2; para 130, lines 3-4;), connected to a network such as the Internet (para. 130, line 1; Fig. 1,"network 14") and configured to present and sell merchandise to customers via the network (para. 128, lines 7-8; para. 130, lines 1-4). The system further includes a business information management system or BIM (para. 129, line 4; para. 131; Fig. 1 "local BIM 22", "global BIM 34") connected to the network and a correspondence generating unit (para. 146, lines 2-3, Fig. 6, "correspondence generator 102") configured to specify correspondence relations between attributes that are objects of interest for a plurality of respective customers and attributes of the merchandise in an electronic commercial transaction at an actual stage of the electronic commercial transaction (para. 15, lines 9-12; para. 130, lines 7-10). The correspondence relations are based on an equivalence relation that satisfies a reflexive law, a symmetric law and a transitive law (para. 64, lines 4-7; para. 13, lines 7-11). The correspondence generating unit is also configured to extract, by a cellular decomposition operation (para. 106, lines 7-12), one or more of the specified correspondence relations as a common subspace satisfying a necessary condition for concluding the electronic commercial transaction by decomposing a set of attributes into nonempty disjoint equivalence classes according to the equivalence relation (para. 139, Fig. 2 "equivalence cell e^q").

The system also includes a table associated with the shop and configured to record the extracted correspondence relations (para. 130, lines 4-8,13-16; Fig. 1: "attribute correspondence table 32") and a correspondence presenting unit (para. 146, line 3; Fig. 6, "correspondence presenting unit 104") configured to present the extracted correspondence relations to subsequent customers in subsequent electronic commercial transactions in a

manner such that the common subspace satisfying a necessary condition for concluding prior electronic commercial transactions is attached to cellular spaces corresponding to the subsequent customers in the subsequent electronic commercial transactions by a cell attaching operation (para. 148, lines 1-8).

The specifying of a correspondence relation between attributes that are objects of interest for the plurality of respective customers and attributes of the merchandise includes specifying a correspondence relation between search information input by the customer at the time of a search (para. 132, lines 2-6) and information about merchandise selected by the customer in concluding the electronic commercial transaction (para. 145, lines 8-10; para. 147, lines 1-4), inspecting a history of prior electronic commercial transactions to determine whether the specified correspondence relation is a new correspondence relation because the search information was not previously corresponded to the information about the merchandise presented by said shop (para. 147, lines 4-7), and where the specified correspondence relation is a new correspondence relation, the search information defining the new correspondence relation is corresponded to information on the merchandise selected in concluding the electronic commercial transaction as a new attribute and recorded in the table (para. 147, lines 7-11).

The correspondence presenting unit is configured to read out and present the correspondence relations stored in the table at a stage of a subsequent electronic commercial transaction (para. 148). The business information management system also includes a functional block configured to refer transversely to respective tables of a plurality of shops (para. 17, lines 10-12; para. 131, lines 4-8).

iii. Dependent claim 25

Dependent claim 25 depends directly from claim 23, and includes all of the limitations of claim 23, as well as the additional elements of detecting mutually-contradicting correspondence relations among the correspondence relations in the attribute

correspondence table ("the correspondence maintaining unit 106 may detect the discrepancy", para. 149), defining an apparently false correspondence relation from the mutually-contradicting correspondence relations based on statistical analysis, and deleting the apparently false correspondence relation from the attribute correspondence table ("[t]he correspondence maintaining unit 106 corrects or deletes apparently false entries accumulated in the attribute correspondence table 32", para. 149).

iv. Dependent claims 15, 16 and 17

Dependent claims 15, 16 and 17 depend directly from claims 12, 13 and 14, respectively, and indirectly from claim 6, and include all of the limitations of claims 6, 12, 13, and 14, respectively, as well the elements of wherein the maintaining functional block ("a correspondence maintaining unit 106", para. 146) is configured to detect mutually-contradicting correspondence relations among the accumulated correspondence relations and to keep the more appropriate correspondence relation while deleting the other correspondence relation from the table (e.g. "if there have been one hundred transactions involving this particular type of teacup and in the majority of them, say eighty transaction, the correspondences established are "white or blue", the correspondence maintaining unit 106 may detect the discrepancy and delete the teacup's correspondence with "red" from the attribute correspondence table 32", para. 149).

(vi)   *Grounds of Rejection to be Reviewed on Appeal*

There are two grounds of rejection to be reviewed in this appeal:

I.   **Whether claims 6-14, 23, and 24 are unpatentable under 35 U.S.C. §103(a) over Bowman et al. (U.S. 6,169,986) in view of Ng (U.S. 6,405,175); and**

II.   **Whether claims 15-17, and 25 are unpatentable under 35 U.S.C. §103(a) over Bowman et al. and Ng in further view of Bauer et al. (U.S. 5,926,816).**

(vii)   Arguments

i.   The cited references

The Applicant submits that Bowman et al. (U.S. 6,169,986) describes a system and method for refining user search queries by correlating key search terms with related search terms using a history of queries submitted to a search engine by a community of users (col. 4, lines 34-37). The system uses query term correlation data in combination with the query term(s) entered by a user to recommend additional query terms for refining the user's query (col. 4, lines 40-43). For example, each entry in the correlation table has two primary components, a "key term" and a "related term" for that key term, wherein the related terms are determined based on the frequency with which the related term appears together with the key term in other queries (col. 7, lines 1-19). When a user submits a query to the web site, a query server invokes a selection process to attempt to identify one or more related terms to suggest to the user (col.7, lines 42-49).

The related terms can be presented to the user via hyperlinks that combine the original query term and the related term. For example, if the user enters the query "ROUGH" in the subject field, three additional hyperlinks may be displayed on the query result page, each of which includes the original query term and an additional term ("related term"). Each of these links is formed by combining the user's original query (e.g. "ROUGH") with one or more related terms selected from previous searches (e.g., the three hyperlinks could be "ROUGH--GUIDE," "ROUGH--LONDON," and "ROUGH--TERRAIN"). When the user clicks on one of these links, that modified query is submitted to the search engine and uses these terms to search a bibliographic database containing information about products.

The Applicant submits that Ng (U.S. 6,405,175) describes a product and price information database for facilitating comparative Internet shopping. Information in the database is collected and corrected by users who submit and update product information (col. 4, lines 49-64), including generally predefined data such as price information, product descriptions, shipping and tax information (col. 6, lines 37-39). When the user enters new product information or corrects existing information in a product database, the account manager rewards the user (col. 5, lines 58-61). Data entry and correction is generally done in a manual fashion, although the software can be configured to fetch information from supplier web pages by defining the field coordinates that map to existing data fields with information such as product make, model, and price (col. 6, lines 57-62).

The Applicant submits that Bauer et al. (U.S. 5,926,816) describes a database synchronizer wherein data in two databases is restored to consistency, for example, where data updates performed by either a client or a server side while a connection between them is severed are propagated to the other side once a connection is re-established (col. 1, lines 50-63). Synchronization is done using a three-step process. First, the client determines what modifications to the client data have taken place since the last synchronization. Second, these modifications are propagated to the server, which has determined that changes have taken place. Finally, the server detects data conflicts, resolves them, and propagates modifications back to the client (col. 2, lines 5-21).

> ii. *Rejections under 35 U.S.C. §103(a) over Bowman et al. in view of Ng*

A. <u>Claims 23 and 24</u>

We begin with arguments related to the <u>second</u> independent claim, claim 23. The Applicant submits that the Examiner has failed to establish a basis for rejection of claim 23 under 35 U.S.C. §103(a):

"35 U.S.C. §103 Conditions for patentability; non-obvious subject matter.
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

To find a claim obvious under §103(a), the prior art reference(s) must teach or suggest all of the claimed limitations. In particular, "**[a]ll words in a claim** must be considered in judging the patentability of that claim against the prior art": *In re Wilson,* 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) (emphasis added).

The Applicant submits that Bowman et al. and Ng, whether taken alone or in combination, do not teach or suggest **all** of the limitations of claim 23, and accordingly, the Examiner has not established that claim 23 is obvious under §103(a).

In the Final Office Action mailed April 19, 2007, the Examiner suggested that Bowman et al. describes "all the elements of the claims except for specifying the use of the search system with a group of stores in an e-mall" (Final Office Action, page 2). After this statement, the Examiner cited several portions of the Bowman specification. However, the Examiner has generally not mapped any sections of Bowman to any particular elements of the claims, for example claim 23, except in relation to the element "stores in an e-mall".

The Examiner stated that Ng teaches a system of e-shops sharing resources in an e-mall in order to increase revenue, and a product search for a group of stores in an e-mall. The Examiner then stated that it would have been obvious for a person of skill to modify Bowman et al. to use it for a product search for a group of stores in an e-mall.

The Applicant has reviewed the Final Office Action, and the Bowman et al. and Ng references in detail, and respectfully submits that they do not teach or suggest **all** the elements of claim 23. In particular, Bowman et al. and Ng, whether taken alone or in

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combination, do not teach or suggest at least the elements of:

"determining if any attributes of the first search attributes did not previously exist in the attribute correspondence table, and for each such attribute:

defining such attribute as a new attribute, and

recording at least one new correspondence relationship **between the new attribute** and **a product attribute** that is **associated with the first product in the attribute correspondence table"**

as claimed in claim 23 (emphasis added).

In the present application, recording a new correspondence relationship between a new attribute and a product attribute in association with **a particular product** is beneficial because it allows that particular product to be returned when a subsequent user performs a subsequent search for products using that **new** attribute (paras. 147-148). In effect, in the present application, the system dynamically adds product attributes based on user purchasing decisions so that subsequent users can find a wider range of products. In contrast, Bowman and Ng do not disclose creating new relationships between new attributes and products themselves based on user purchasing decisions.

For example, according to the present application, suppose that a first user searches for teacups using the following search terms: "blue", "less than $15.00", and "round". The search processor then presents a list of product results by comparing these search terms to product attributes associated with various teacups. In some cases, the teacups will have product attributes with information about price ("less than $15.00) and shape ("round"), but **no** information about the color ("blue"). In such instances, the system can display a list of results that may include some teacups that do not satisfy all of the first user's search terms.

When that first user decides to purchase a particular teacup, the system *presumes* that the purchased teacup satisfies all of the first user's search terms, and any search terms that were not already associated with that particular teacup (e.g. "blue") are now associated with that particular teacup as a new attribute. It is important to note that this association

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does not mean that the teacup is <u>in fact</u> a blue color, just that a purchaser searching for an item using the attribute "blue" selected that particular product. As such, that particular product may be interesting to a subsequent purchaser looking for the attribute "blue".

When a <u>second</u> user subsequently searches for teacups using the same search terms (e.g. "blue", "less than $15.00", and "round"), the system will now have an exact match (i.e. a teacup having all three attributes associated with it), and the system can display only that particular teacup, or alternatively show that particular teacup as a higher ranked match in a list with other teacups that do not exactly match. In this manner, the <u>second</u> user benefits from the purchasing decisions made by the <u>first</u> user in purchasing a particular teacup, and the product attributes associated with the teacups are dynamically altered based on the first user's search terms. Over time, additional product attributes can be associated with different teacups based on the buying patterns of the various customers, providing for automatic creation of product attributes for products **without** the seller (e.g. e-shop or e-mall) or the user (e.g. customer) needing to enter product attribute data for the products. Further, because the new attributes do not necessarily need to be "true", additional attributes can be added that might not be added by a seller or user that enters information based on viewing/considering the product itself.

Furthermore, according to the method claimed in claim 23 of the present application, a new correspondence relationship with the new attribute (e.g. "blue") can be recorded in association with a particular teacup after the first customer purchases that teacup. When a second user then searches for teacups using **only the new search term** (e.g. "blue"), the system can present the particular teacup as a match because the system has previously associated the color "blue" with that particular teacup as a result of the first user's search. In the present application the new attributes are associated with the products themselves, and subsequent searches using <u>only</u> the new attribute can still return these potentially relevant products.

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In contrast, the "related terms" suggested by Bowman are not usable to search for products when the bibliographic data about the products does not include information about such terms. Consider the example above where the first user searched for teacups using the first search terms: "blue", "less than $15.00", and "round". Using the system taught by Bowman, the terms "blue", "less than $15.00" and "round" could be stored as key terms and related terms in association with each other after the first search by the first user. However, when the bibliographic data in Bowman does not already include information about the colors of teacups that are available, a second user who searches for teacups using <u>only</u> the term "blue" will <u>not</u> be presented with the particular teacup selected by the first user. There is no way in Bowman of associating the related term "blue" with one or more <u>actual</u> **products.**

As noted above, Bowman stores the related terms within entries of a correlation data structure (col. 2, lines 48-51) that associates search terms with <u>other search terms</u>, and **not** with products. For example, each entry of the correlation table has "a key term and a corresponding related terms list" and "[e]ach related terms list contains the terms which have historically appeared together (in the same query) with the respective key term" (col. 2, line 65 to col. 3 line 2). However, Bowman et al. does not determine if any attributes are new attributes that did not previously exist in association with a particular product. More specifically, Bowman does not associate any new search terms **with a particular product** in an attribute correspondence table.

The Examiner correctly states that Bowman discloses "a system and method for refining search queries" (Final Office Action, page 2). However, refining a search query is <u>distinctly different</u> from recording a new correspondence relationship between a new attribute and a product attribute in association with a particular product. In particular, refining a search query only adds new related search terms. The use of the new terms in Bowman will still only return products that <u>already</u> have some relation to the new search terms in the bibliographic database.

While Bowman does discuss updating the correlation table (col. 8, lines 40-57 and col. 12, lines 33-42), the correlation table relates search terms with other search terms, not with products: "each entry within the correlation table 137 (two entries shown) has two primary components: a 'key' term 140, and a 'related terms' list 142 for that key term." (col. 7, lines 1-4). Bowman never describes the correlation table as containing information about specific products, let alone how terms or attributes relate to specific products or about the updating of relationships between attributes and products.

The Examiner relies on Ng as teaching a system of e-malls sharing resources in an e-mall. The Applicant submits that Ng does not provide any additional teaching or suggestion with regard to at least the elements discussed above. As noted above, Ng relies on the entry of information into a product database having generally fixed attributes. While a user in Ng can enter or modify product information stored in a product database, this is generally done in a manual process in exchange for rewards (col. 5, lines 55-62), which presumably requires the user to register with the database owner. In Ng, modifications to the product information are not dynamically based on search terms entered by and purchase decisions made by a user as in the claims of the present application.

More specifically, the Applicant submits that Bowman and Ng, even if combined, would not provide the functionality as claimed in claim 23. At best, if the teachings of Bowman and Ng were combined, one would have a search engine that correlates first search terms entered by a user ("key terms") with other search terms ("related terms") (Bowman). These related terms could then be suggested to the user, who would then select which related terms to use in narrowing the search results (Bowman). Once the user located a desired product result, the search term correlation data structure might be updated to adjust the frequency weighting of the related terms list (Bowman). The user could then use a data entry module to manually enter new product information or correct existing product information in a product database (Ng). In return, the user would be provided with rewards (Ng). In this process, the user would be encouraged to enter correct data for the product. There would

be no automatic association of new attributes from the search with products based on a user's purchase decision that could be used in a subsequent search to find the same product. This is significantly different functionality from that provided by the method of claim 23 of the present application.

The Applicant submits that Bowman in fact teaches away from the functionality in the present application and claims. Bowman is directed to and attempts to solve the problem presented where a user receives a large number of query results, which "requires the user to read through many other items in the query result before reaching the sought item" (col. 1, lines 48-55). Bowman attempts to narrow the search by allowing the user to add additional search terms based on previous searches. An objective of Bowman is to narrow the returned search results (col. 6, lines 47-52).

In contrast, according to the present application, because new attributes are related to **products** based on the search terms and purchase decisions of prior users, the system can actually expand the number and scope of results that will be presented by a particular search query, because over time, products in the present application will have additional attributes associated therewith.

The Applicant submits that Ng also teaches away from the functionality of the present method in that Ng is intended to produce correct and up-to-date database information. This does not teach the type of associations between attributes and products that can occur under the methods in the present application, such as allowing an association between "blue" and a teacup that may actually be a red color.

Accordingly, the Applicant submits that neither Bowman nor Ng, nor the combination thereof, teach or suggest all of the elements in independent claim 23 or would lead one of ordinary skill in the art directly to the method of claim 23. Accordingly, the Applicant submits that the Examiner has failed to establish a case for obviousness under 35 U.S.C. §103(a),

and that the rejection of independent claim 23 should be withdrawn.

Claim 24 depends from claim 23, and includes all of the limitations thereof, as well as the additional elements of:

> "providing a business information management system, wherein the business information management system receives at least one of the first and subsequent customer queries, and wherein at least one of the first or subsequent product results are also based on correspondence relations recorded in attribute correspondence tables of any of a plurality of e-shops."

For similar reasons as those described above with claim 23, as well as for the additional elements included therein, claim 24 is also believed to be in condition for allowance (*In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

B. Claims 6, 7, 8, 9, 10, 11, 12, 13 and 14

We turn now to arguments related to the first independent claim, claim 6. Independent claim 6 includes elements that are similar to independent claim 23, and for reasons analogous to those given above, the Applicant submits that the Examiner has failed to establish a basis for rejection of claim 6 under 35 U.S.C. §103(a).

Specifically, the Applicant submits that the references do not teach or suggest **all** the elements of claim 6. In particular, Bowman et al. and Ng, whether taken alone or in combination, do not teach or suggest at least the elements of:

> "specifying a correspondence relation **between search information** input by the customer at the time of a search **and information about merchandise selected by the customer** in concluding the electronic commercial transaction...";
> "inspecting a history of prior electronic commercial transactions to determine whether the specified correspondence relation is a **new correspondence relation**..."; and
> "where the specified correspondence relation is a **new correspondence relation**, the search information defining the new correspondence relation is **corresponded to information on the merchandise selected** in concluding the electronic commercial transaction as a **new attribute...**"

as claimed in claim 6 (emphasis added).

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As discussed in detail above, the Applicant submits that Bowman et al. does not "specify a correspondence relation between search information" and "merchandise selected by the customer". Bowman relates search terms to other search terms. Bowman does not correspond the new correspondence relation "to information on the merchandise...as a new attribute". As argued above for the similar elements of claim 23, the Applicant submits that Ng does not provide any additional teaching or suggestion with regard to at least the elements listed above.

Furthermore, Applicant submits that Bowman and Ng, whether taken alone or in combination, do not teach or suggest at least the **additional** elements of:

> "a correspondence generating unit configured to specify correspondence relations between attributes... based on an equivalence relation which satisfies a reflexive law, a symmetric law and a transitive law..."
> "[and] configured to extract, by a cellular decomposition operation, one or more of the specified correspondence relations...by decomposing a set of attributes into nonempty disjoint equivalence classes according to the equivalence relation" and "a correspondence presenting unit configured to present the extracted correspondence relations to subsequent customers...such that the common subspace satisfying a necessary condition for concluding prior electronic commercial transactions is attached to cellular spaces corresponding to the subsequent customers... by a cell attaching operation..."

as further recited in claim 6.

The Applicant submits that there is no teaching or suggestion in Bowman et al. or Ng of a reflexive law, a symmetric law and a transitive law, of a cellular decomposition operation decomposing a set of attributes into nonempty disjoint equivalence classes according to an equivalence relation, or of presenting correspondence relations to subsequent customers via a cell attaching operation.

As a particular example, Bowman et al. may in fact teach away from at least one of these elements in that key terms may correspond with related terms but related terms do not

necessarily correspond with a key term if, for example, the related term does not rank highly enough to be a key term. Thus, there is not necessarily a symmetric relationship in terms of correspondence between key terms and related terms.

Accordingly, for similar reasons to those given above for claim 23, as well for the additional elements and reasons listed here, the Applicant submits that Bowman et al. and Ng, whether taken alone or in combination, do not teach or suggest **all** of the claimed limitations of claim 6. Accordingly, the Examiner has not established that claim 6 is obvious under §103(a), and therefore the rejection of claim 6 should be withdrawn.

Claim 7 depends from claim 6, and includes all of the limitations thereof, as well as the additional elements of: "wherein said business information management system further includes a second functional block configured to detect a desired correspondence relation from said correspondence relations recorded in the table of any of said plurality of shops." Claim 8 depends from claim 7, and includes all of the limitations thereof, as well as the additional elements of: "wherein said business information management system further includes a third functional block configured to present the detected desired correspondence relation at an actual stage of an electronic commercial transaction at another shop." Claims 9, 10 and 11 depend from claims 6, 7 and 8 respectively, and recite similar additional limitations. For example, claim 9 depends from claim 6, and includes all of the limitations thereof, as well as the additional elements of: "wherein said shop further includes a local business information management block configured to manage the table." Claims 12, 13 and 14 recite similar limitations, and depend from claims 9, 10 and 11, respectively. For example, claim 12 depends from claim 9, and includes all of the limitations thereof, as well as the additional element of: "wherein said local information management block includes a maintaining functional block configured to inspect accumulating correspondence relations and to suitably modify the correspondence relations." For the reasons listed above for claim 6, as well as for the additional elements included therein, claims 7-14 are also believed to be in condition for allowance.

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iii. Rejections under 35 U.S.C. §103(a) over Bowman et al. and Ng in further view of Bauer et al.

A. Claim 25

We turn now to arguments related to the dependent claim 25. The Applicant submits that the Examiner has failed to establish a basis for rejection of claim 25 under 35 U.S.C. §103(a).

Claim 25 depends from claim 23, and includes all of the limitations thereof, as well as the additional elements of:

> "detecting mutually-contradicting correspondence relations among the correspondence relations in the attribute correspondence table; defining an apparently false correspondence relation from the mutually-contradicting correspondence relations based on statistical analysis; and deleting the apparently false correspondence relation from the attribute correspondence table."

In the Final Office Action, the Examiner stated that "Bauer et al. teaches a database synchronizer, which determines conflict detection (col. 24, lines 12-13) and runs programs (col. 25, lines 39-54), which include defining 'false data' and deleting it in order to properly combine two sets of data." The Examiner then asserted that it would have been obvious to modify Bowman et al. and Ng to incorporate the synchronization method of Bauer et al.

The Applicant submits that Bauer et al. relates to a very different problem from the issue of detecting contradicting correspondence relations in a single database. Bauer et al. is directed at synchronizing related data in two similar database structures, such as in a client-side and a server-side which share data in similar database structures, but which do not maintain a continuous connection to a shared data source.

By contrast, according to the present application, a correspondence maintaining unit corrects or deletes apparently false entries accumulated within the attribute correspondence table itself, in some cases based on statistical analysis. For example, suppose that a customer had initially searched for a "red" teacup but purchased a teacup that is actually blue. The teacup will be deemed to have a correspondence with "red" based on the customer's purchasing decision. However, if there are subsequently one hundred purchases of this particular teacup, and a majority of the purchases did not establish correspondences between the teacup and the color "red" or the correspondences established are "white or blue" rather than "red", the correspondence maintaining unit may detect this as a discrepancy and delete the teacup's correspondence with "red" from the attribute correspondence table. In this manner, attributes that do not have a strong correspondence and/or conflict in some way can be removed and the integrity and reliability of the attribute correspondence relation table can be automatically maintained at an acceptable level (para. 149).

The closest functionality described in Bowman et al. appears to relate to correcting misspelled terms within search queries (col. 8, lines 11-17). Ng, on the other hand, describes "User B may correct this information using a change form from the product/price database web site. User B is credited with 5 points for correcting the information" (col. 9, lines 5-8).

With respect, a person of skill in the art would be unlikely to combine the teachings of Bauer et al., which relate to synchronizing data between two database structures, with those of Bowman et al., which relate to correlating key search terms with related search terms. In Bowman et al. there is no conflict because the related terms list can be as long as necessary and is intended to include a variety of terms that may not have the same meaning. Although Bauer et al. and Ng are more closely related, Ng appears to teach away from Bauer et al. by specifically contemplating that any automatic data acquisition (i.e. data gathering or comparison, for example if one were to use a system such as that in Bauer et

al.) can introduce errors ("The software may not extract all fields correctly, so some of the data may be in error", col. 12, lines 27-28) and that users can correct the errors made by the software data collection ("...the user is queried to correct errors in automated software data acquisition. If the price of other information has changed, the user is allowed to correct the information", col. 8, lines 19-22).

Accordingly, the Applicant submits that none of Bowman et al., Ng or Bauer et al., whether taken alone or in combination, teach or suggest at least the elements of:

> "detecting mutually-contradicting correspondence relations among the correspondence relations in the attribute correspondence table; defining an apparently false correspondence relation from the mutually-contradicting correspondence relations based on statistical analysis; and deleting the apparently false correspondence relation from the attribute correspondence table"

as claimed in claim 25. Accordingly, for at least these reasons, as well as for the reasons stated above with respect to claim 23, the Applicant submits that the Examiner has failed to establish that claim 25 is obvious under 35 U.S.C. §103(a), and accordingly the rejection of claim 25 should be withdrawn.

B. <u>Claims 15, 16 and 17</u>

We turn now to arguments related to the dependent claims 15, 16 and 17. Claims 15, 16 and 17 recite similar limitations, and depend from claims 12, 13 and 14, respectively. For example, claim 15 depends from claim 12, and includes all of the limitations thereof, as well as the additional element of: "wherein said maintaining functional block is configured to detect mutually-contradicting correspondence relations among the accumulated correspondence relations and to keep the more appropriate correspondence relation while deleting the other correspondence relation from the table." Accordingly, claims 15, 16 and 17 will stand or fall together.

The Examiner has argued that claims 15, 16 and 17 are obvious given the teachings of Bauer et al. in combination with Ng and Bowman et al.

Claims 15, 16, and 17 relate to similar functionality as that described in relation to claim 25 above. As discussed above, the teachings of Bauer et al. relate to synchronizing data between two database structures, and **not** at detecting contradicting correspondence relations and keeping the more appropriate correspondence relation, while deleting the other correspondence relation, based on, for example, statistical analysis.

As discussed above in relation to claim 25, a person of skill in the art would be unlikely to combine the teachings of Bauer et al., which relate to synchronizing data between two database structures, with those of Bowman et al., which relate to correlating key search terms with related search terms. Further, Ng appears to teach away from Bauer et al. by specifically contemplating that any automatic data acquisition (i.e. data gathering or comparison, perhaps using a system such as that in Bauer) can introduce errors ("The software may not extract all fields correctly, so some of the data may be in error", col. 12, lines 27-28) and that users can correct the errors made by the software data collection ("...the user is queried to correct errors in automated software data acquisition. If the price of other information has changed, the user is allowed to correct the information", col. 8, lines 19-22).

Accordingly, the Applicant submits that the Examiner has failed to establish that claims 15, 16 and 17 are obvious under 35 U.S.C. §103(a), and accordingly the rejection of these claims should be withdrawn.

iv. Conclusions

Two grounds of rejection were reviewed in this appeal:

I.   **Whether claims 6-14, 23, and 24 are unpatentable under 35 U.S.C. §103(a) over Bowman et al. (U.S. 6,169,986) in view of Ng (U.S. 6,405,175); and**

II.   **Whether claims 15-17, and 25 are unpatentable under 35 U.S.C. §103(a) over Bowman et al. and Ng in further view of Bauer et al. (U.S. 5,926,816).**

In light of the foregoing arguments, the Applicant submits that claims 6-14, 23 and 24 are not obvious under 35 U.S.C. §103(a) in light of Bowman et al. and Ng, whether taken alone or in any combination. Furthermore, the Applicant submits that claims 15-17, and 25 are not obvious under 35 U.S.C. §103(a) in light of Bowman et al., Ng, and Bauer et al., whether taken alone or in any combination.

As noted above, Bowman et al., Ng, and Bauer et al. relate to different technologies, in some cases from each other, and in any case, from those claimed in claims 6-17 and 23-25, and accordingly would not have been combined by a person of skill in the art. It is improper for the Examiner to use the teachings of the present application as a roadmap and attempt to use hindsight to try and cobble together various pieces of Bowman et al., Ng and Bauer et al. to provide the claimed elements. This is particularly true where the references teach away from such a combination as variously noted above.

Furthermore, even if the Bowman et al., Ng and Bauer et al. references could be combined, they still do not teach or suggest **all** of the claimed limitations of claims 6-17 and 23-25. In particular, for example, none of Bowman et al., Ng, or Bauer et al. whether taken alone or in combination teach or suggest determining if any attributes of first search attributes did
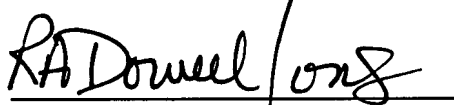
not previously exist in an attribute correspondence table, and for each such attribute, defining such attribute as a new attribute, and recording at least one new correspondence relationship between the new attribute and **a product attribute**, as variously claimed in independent claims 6 and 23.

The Honorable Board is respectfully requested to reverse the rejections of claims 6-17 and 23-25 set forth in the final rejection, and to pass this application to issuance.

Respectfully submitted,

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(viii) Claims Appendix

Claim 1 - 5 (Cancelled)

Claim 6: An electronic commercial transaction supporting system, comprising:

a shop, connected to a network, configured to present merchandise to customers via the network; and

a business information management system connected to the network, wherein said shop includes:

a correspondence generating unit configured to specify correspondence relations between attributes that are objects of interest for a plurality of respective customers and attributes of the merchandise in an electronic commercial transaction at an actual stage of the electronic commercial transaction, based on an equivalence relation which satisfies a reflexive law, a symmetric law and a transitive law, the correspondence generating unit also configured to extract, by a cellular decomposition operation, one or more of the specified correspondence relations as a common subspace satisfying a necessary condition for concluding the electronic commercial transaction by decomposing a set of attributes into nonempty disjoint equivalence classes according to the equivalence relation;

a table associated with the shop and configured to record the extracted correspondence relations; and

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a correspondence presenting unit configured to present the extracted correspondence relations to subsequent customers in subsequent electronic commercial transactions in a manner such that the common subspace satisfying a necessary condition for concluding prior electronic commercial transactions is attached to cellular spaces corresponding to the subsequent customers in the subsequent electronic commercial transactions by a cell attaching operation,

wherein, the specifying of a correspondence relation between attributes that are objects of interest for the plurality of respective customers and attributes of the merchandise comprises:

specifying a correspondence relation between search information input by the customer at the time of a search and information about merchandise selected by the customer in concluding the electronic commercial transaction and inspecting a history of prior electronic commercial transactions to determine whether the specified correspondence relation is a new correspondence relation because the search information was not previously corresponded to the information about the merchandise presented by said shop, and where the specified correspondence relation is a new correspondence relation, the search information defining the new correspondence relation is corresponded to information on the merchandise selected in concluding the electronic commercial transaction as a new attribute and recorded in the table,

wherein the correspondence presenting unit is configured to read out and

present the correspondence relations stored in the table at a stage of a subsequent

electronic commercial transaction, and

wherein said business information management system includes a functional

block configured to refer transversely to respective tables of a plurality of shops.

Claim 7: A system according to Claim 6, wherein said business information

management system further includes a second functional block configured to detect a

desired correspondence relation from said correspondence relations recorded in the

table of any of said plurality of shops.

Claim 8: A system according to Claim 7, wherein said business information

management system further includes a third functional block configured to present the

detected desired correspondence relation at an actual stage of an electronic

commercial transaction at another shop.

Claim 9: A system according to Claim 6, wherein said shop further includes a local

business information management block configured to manage the table.

Claim 10: A system according to Claim 7, wherein said shop further includes a local

business information management block configured to manage the table.

Claim 11: A system according to Claim 8, wherein said shop further includes a local

business information management block configured to manage the table.

Claim 12: A system according to Claim 9, wherein said local information management

block includes a maintaining functional block configured to inspect accumulating

correspondence relations and to suitably modify the correspondence relations.

Claim 13: A system according to Claim 10, wherein said local information management

block includes a maintaining functional block configured to inspect accumulating

correspondence relations and to suitably modify the correspondence relations.

Claim 14: A system according to Claim 11, wherein said local information management

block includes a maintaining functional block configured to inspect accumulating

correspondence relations and to suitably modify the correspondence relations.

Claim 15: A system according to Claim 12, wherein said maintaining functional block is

configured to detect mutually-contradicting correspondence relations among the

accumulated correspondence relations and to keep the more appropriate

correspondence relation while deleting the other correspondence relation from the table.

Claim 16: A system according to Claim 13, wherein said maintaining functional block is

configured to detect mutually-contradicting correspondence relations among the

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accumulated correspondence relations and to keep the more appropriate

correspondence relation while deleting the other correspondence relation from the table.

Claim 17: A system according to Claim 14, wherein said maintaining functional block is

configured to detect mutually-contradicting correspondence relations among the

accumulated correspondence relations and to keep the more appropriate

correspondence relation while deleting the other correspondence relation from the table.

Claim 18-22 (Cancelled)

Claim 23: An electronic commercial transaction supporting method, comprising:

    providing an e-mall having at least one e-shop, including:

        an e-merchandise database, and

        an attribute correspondence table;

    recording, within the e-merchandise database, an initial set of product attributes

associated with a plurality of products;

    receiving a first customer query from a first e-customer via a network, said query

including a set of first search attributes;

    presenting, to the first e-customer, first product results including at least one

product selected from the plurality of products, the first product results based on:

        the initial set of product attributes, and

        the first search attributes;

detecting if the first e-customer purchases a first product selected from the first

product results;

determining if any attributes of the first search attributes did not previously exist

in the attribute correspondence table, and for each such attribute:

defining such attribute as a new attribute, and

recording at least one new correspondence relationship between the new

attribute and a product attribute that is associated with the first product in the

attribute correspondence table; and

for at least one iteration:

receiving a subsequent customer query from a subsequent e-customer, said

subsequent customer query including a set of subsequent search attributes;

presenting, to the subsequent e-customer, subsequent product results including

at least one product selected from the plurality of products, the subsequent

product results based on:

the initial set of product attributes,

the subsequent search attributes, and

the correspondence relationships recorded in the attribute

correspondence table;

detecting if the subsequent e-customer purchases a subsequent product

selected from the subsequent product results;

determining if any attributes of the subsequent search attributes did not

previously exist in the attribute correspondence table, and for each such

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attribute:

defining such attribute as a new attribute, and

recording at least one new correspondence relationship between the new

attribute and a product attribute that is associated with the subsequent

product in the attribute correspondence table.

Claim 24: The electronic commercial transaction supporting method of claim 23, further

comprising:

providing a business information management system, wherein the business

information management system receives at least one of the first and subsequent

customer queries, and wherein at least one of the first or subsequent product results are

also based on correspondence relations recorded in attribute correspondence tables of

any of a plurality of e-shops.

Claim 25: The electronic commercial transaction supporting method of claim 23, further

comprising:

detecting mutually-contradicting correspondence relations among the

correspondence relations in the attribute correspondence table;

defining an apparently false correspondence relation from the mutually-

contradicting correspondence relations based on statistical analysis; and

deleting the apparently false correspondence relation from the attribute

correspondence table.

(ix)   Evidence Appendix

None.

(x) *Related Proceedings Appendix*

None.